

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Art Unit: 2623

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Conf. No.: 6575

Application No.: 10/060,049

Filed: January 28, 2002

**VIA Electronic Filing**

For: Efficient Interactive TV

Examiner: U. Raman

Date: November 21, 2007

**APPEAL BRIEF**

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Sir:

Appellants respectfully request the Board of Patent Appeals and Interferences (hereafter the “Board”) to reverse the outstanding final rejection of the pending claims.

This Appeal Brief is in furtherance of a Notice of Appeal filed July 23, 2007. Please charge the fee required under 37 CFR 1.17(f) or any other fee needed to consider this Appeal Brief to our deposit account no. 50-1071.

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### **REAL PARTY IN INTEREST**

The real party in interest is Digimarc Corporation, by an assignment from the inventors recorded at Reel 012859, frames 0378-0379, on April 29, 2002.

### **RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

### **STATUS OF CLAIMS**

Claims 20-28 are pending and are on appeal. Each of these claims stands finally rejected. (Claims 1-19 and 29-59 were previously canceled.) Please see the Office Action Summary in the final Office Action mailed March 22, 2007 – hereafter referred to as “the final Office Action”.

### **STATUS OF AMENDMENTS**

All earlier-filed amendments have been entered.

### **SUMMARY OF CLAIMED SUBJECT MATTER**

The present invention relates to interactive television systems (see page 1, paragraph [0004]) including digital watermarking functionality (see, e.g., paragraphs [0007] and [0009]). Digital watermarking, a form of steganography, hides auxiliary data in host content like audio or video content. In the claimed invention, a digital watermark identifier is extracted from data representing picture or audio portions of received content. This is so-called “in-band” embedding, which is different from “out-of-band” embedding like tags, header files, and vertical blanking intervals (see, e.g., paragraphs [0007] and [0009]).

Claim 20 recites an interactive television system for distributing content including an identifier. The system includes: a cable head end to receive the content, the content including an embedded digital watermark comprising an identifier (see, e.g., paragraphs [0075] and [0076]). The cable head end includes: a digital watermark detector to extract the identifier from data

representing picture or audio portions of the received content (see, e.g., paragraph [0075]); a bridge to communicate the extracted identifier to a database, the database including a trigger indexed according to the identifier, said bridge to receive a corresponding trigger identified in the database as corresponding to the identifier (see, e.g., paragraphs [0075] and [0076]); and an inserter communicating with said bridge to insert the trigger into the received content (see, e.g., paragraphs [0075] and [0076]).

Claim 26 recites an interactive television system for distributing content embedded with unique identifiers. The system includes: a cable head end to receive content steganographically embedded with a unique identifier hidden in data representing picture or audio portions of the content (see, e.g., paragraphs [0075] and [0076]; see also paragraphs [0042] – [0047]). The cable head end has an aggregator in communication with at least one set-top box and with a database, the aggregator communicating the unique identifier once extracted from the content to the database, and communicating related interactive data from the database to the set-top box (see, e.g., paragraphs [0075] and [0076]; see also paragraphs [0042] – [0047]).

The above specification citations should not be construed as limiting claim scope. Of course, additional and alternative support can be found throughout the application as well.

### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

1. Claims 20-28 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,961,603 (hereafter referred to as “the Kunkel patent” or simply “Kunkel”) in view of U.S. Patent No. 5,822,432 (hereafter referred to as “the Moskowitz patent” or simply “Moskowitz”).

## ARGUMENT

### *Rejections under U.S.C. 103(a) over the Kunkel patent in view of the Moskowitz patent*

#### Claims 20-25

Independent claim 20 recites:

20. *An interactive television system for distributing content including an identifier, said system comprising:*

*a cable head end to receive the content, the content including an embedded digital watermark comprising an identifier, said cable head end comprising:*

*a digital watermark detector to extract the identifier from data representing picture or audio portions of the received content;*

*a bridge to communicate the extracted identifier to a database, the database including a trigger indexed according to the identifier, said bridge to receive a corresponding trigger identified in the database as corresponding to the identifier; and*

*an inserter communicating with said bridge to insert the trigger into the received content.*

*The final Office Action misstates the teachings of the Kunkel patent by its reliance on MPEP tags.*

The final Office Action misstates the teachings of the Kunkel patent by suggesting that MPEP tags are “in-band” data. Please see the final Office Action, page 2, lines 6-11 of paragraph 2 and page 4, lines 6-10. One of ordinary skill in the art will recognize that MPEP tags are “out-of-band”, meaning that they are not carried through slight alterations to audio or video content itself as is the case with digital watermarking. Please see the subject specification at paragraph [0007]. MPEP tags are in the same out-of-band family as headers and Vertical

Blanking Interval (VBI) data, and are not in-band data carriers as required in claim 20.

Indeed, claim 20 recites a digital watermark detector to extract an identifier *from data representing picture or audio portions of received content*. That is, the digital watermark identifier is extracted from the picture or audio data itself or carried “in band” relative to the picture or audio portions of the content.

The final Office Action misstates the Kunkel patent by suggesting that a MPEP tag is in-band data. One of ordinary skill in the art would not make this error. Thus, Kunkel does not teach what it is cited to teach.

*The Kunkel patent teaches away from its combination with digital watermarking.*

The Kunkel patent teaches away from combining its system with in-band (or digital watermarking) techniques. For example, while acknowledging that out-of-band data can be detected from tags in VBI lines at a cable head end (Col. 6, lines 20-22), Kunkel prefers to *send a stream of ID tags in a separate transmission*. Please see Kunkel at Col. 6, lines 15-20.

Thus, Kunkel’s preferred technique does not even use out-of-band data detection (tags) – let alone in-band data detection (e.g., watermarking).

This discussion points an artisan away from detecting watermark identifiers hidden in data. Such express statements and reliance on out-of-band technology suggest that the claimed combination is more likely to be non-obvious. Please see *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007), slip op. at 12, citing, *United States v. Adams*, 383 U.S., 39, 51-52 (1966) (“The court relied upon the corollary principle that when the prior art teaches away from combining certain known elements, discovery of a successfully means of combining them is more likely to be nonobvious.”).

*The Kunkel patent should not be combined with Moskowitz.*

Kunkel should not be combined with Moskowitz as suggested in the final Office Action for at least the following three reasons.

First, the cited Moskowitz passage, Col. 8, line 66 – Col. 9, lines 28, discusses “metering watermarks”. A seemingly restrictive requirement of Moskowitz’s metering watermarks is that they “could be dependent on a near continuous exchange of information between the transmitter and receiver of the metered information in question.” Please see Moskowitz, Col. 9, lines 17-19. The final Office Action does not address whether such a requirement is even feasible in the Kunkel system.

Second, the final Office Action lacks a proper discussion of one of ordinary skill in the art. Indeed, the final Office Action lacks an explicit analysis of the “effects of demands known to the design community or present in the marketplace” and “the background knowledge possessed by a person having ordinary skill in the art.” Please see *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007), slip op. at 14. We respectfully submit that one of ordinary skill in the art would not modify Kunkel with Moskowitz as suggested, and may not even possess the required skill level to do so.

Third, given the heavy reliance in the Kunkel patent on out-of-band identifiers (e.g., VBI tags and headers) and the lack of discussion in the Moskowitz patent of integrating digital watermark in a cable head end to facilitate interactive TV, we respectfully suggest that one of ordinary skill in the art when reading the Kunkel patent’s discussion of separate transmissions of ID tags and content to the cable head end (please see Col. 6, lines 15-20) would not be motivated or inspired to find a different signaling technique, let alone an in-band (e.g., digital watermarking) signaling technique, to redesign the Kunkel system.

Thus, Kunkel should not be combined with Moskowitz as suggested in the final Office Action.

*The final Office Action employs impermissible hindsight when crafting its rejection.*

The final Office Action states “it would have been clearly obvious to one of ordinary skill in the art to modify Kunkel with the use of digital watermark for content identification for the stated advantages.” Please see the final Office Action on page 6, lines 9-11. Yet none of the stated advantages address the claimed invention, e.g., an interactive television system utilizing a watermark detector as claimed.

Thus, we think the stated reasoning assumes knowledge of the invention, rather than establishing reasons, need or market pressure to make the claimed arrangement. There are no stated reasons that would lead an artisan to the arrangement claimed without use of Appellant’s specification and claim as a guide. Thus, the reasoning is improper and reflects “the distortion caused by hindsight bias.” Please see KSR, slip op. at 17.

We respectfully request the final rejection of claim 20 be reversed.

Claims 26-28

Independent claim 26 recites:

*26. An interactive television system for distributing content embedded with unique identifiers, said system comprising:*

*a cable head end to receive content steganographically embedded with a unique identifier hidden in data representing picture or audio portions of the content, said cable head end comprising an aggregator in communication with at least one set-top box and with a database, said aggregator communicating the unique identifier once extracted from the content to the database, and communicating related interactive data from the database to the set-top box.*



Claim 26 should be allowed at least for reasons analogous to those discussed above with respect to claim 20.

For example, the Kunkel patent suggests carrying its so called ID in out-of-band tags (please see, e.g., Col. 5, lines 35-43) and not in-band (e.g., as with the claimed steganography) as recited in claim 26. The teachings of Kunkel are believed to be overstated in this regard.

Kunkel and Moskowitz are believed to be improperly combined. For example, would the Moskowitz metering watermarking, with its stated requirements, be combinable with Kunkel without further invention by a skilled artisan? And, would one of ordinary skill in the art be able to make the necessary modifications to Kunkel in order to achieve the claimed invention? Appellants are left to “guess” since the final Office Action is silent in this regard, and guessing deprives Appellants a fair opportunity to respond on the record. Moreover, Kunkel teaches away from its combination with an in-band or digital watermarking signaling technique, through its heavy reliance of out-of-band signaling, and even separate transmission of its IDs.

The final rejection of claim 26 should be reversed.

### **CONCLUSION AND REQUEST FOR REVERSAL**

Appellants respectfully request the Board to reverse the final rejection of the pending claims.

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Respectfully submitted,

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**CLAIMS APPENDIX**

1-19. canceled.

20. (previously presented): An interactive television system for distributing content including an identifier, said system comprising:

a cable head end to receive the content, the content including an embedded digital watermark comprising an identifier, said cable head end comprising:

a digital watermark detector to extract the identifier from data representing picture or audio portions of the received content;

a bridge to communicate the extracted identifier to a database, the database including a trigger indexed according to the identifier, said bridge to receive a corresponding trigger identified in the database as corresponding to the identifier; and

an inserter communicating with said bridge to insert the trigger into the received content.

21. (original): The interactive television system according to claim 20, wherein said inserter communicates with at least a set-top box.

22. (original): The interactive television system according to claim 20, wherein said cable head end communicates the trigger to a network and receives from the network related content.

23. (original): The interactive television system according to claim 22, wherein the related content comprises interactive content.

24. (previously presented): The interactive television system according to claim 22, wherein the related content comprises at least one content item from a group of content items comprising a web page, HTML code, Java applet, audio, visual, graphic, and text.

25. (original): The interactive television system according to claim 22, wherein said inserter inserts the related content into the received content.

26. (previously presented): An interactive television system for distributing content embedded with unique identifiers, said system comprising:

a cable head end to receive content steganographically embedded with a unique identifier hidden in data representing picture or audio portions of the content, said cable head end comprising an aggregator in communication with at least one set-top box and with a database, said aggregator communicating the unique identifier once extracted from the content to the database, and communicating related interactive data from the database to the set-top box.

27. (original): The system according to claim 26, wherein said aggregator communicates with a plurality of set-top boxes, and wherein said aggregator multicasts the related interactive data to the set-top boxes.

28. (previously presented): The system according to claim 26, wherein unique identifiers are embedded with digital watermarking.

29 – 59. canceled.

**EVIDENCE APPENDIX**  
**(No Evidence)**

**RELATED PROCEEDINGS APPENDIX**  
**(No Related Proceedings)**